WHAT IS CLAIMED IS:

1. A laminate type dielectric device formed by alternately laminating dielectric ceramic layers and electrode layers, wherein said electrode layer is mainly made of an electrically conductive base metal material having a greater standard Gibbs free energy for the formation of metal oxides at a baking temperature than that of ceramic materials constituting said dielectric ceramic layer, and segregation of materials inclusive of said conductive base metal material does not occur at a portion sandwiched between adjacent positive and negative electrode layers in said dielectric ceramic layer.

2. A laminate type dielectric device according to claim 1, wherein at least a part of said electrically conductive base metal material is oxidized.

3. A laminate type dielectric device according to claim 1, wherein a bonding layer made of a material having the dielectric characteristics of said dielectric ceramic layer is sandwiched between said dielectric ceramic layer and said electrode layer.

4. A laminate type dielectric device according to claim 3, wherein said bonding layer is constituted by replacing a part of components constituting said dielectric ceramic layer by other atoms.

5. A laminate type dielectric device according to claim 3, wherein said bonding layer is formed as Ca and is diffused into said dielectric ceramic layer.

6. A laminate type dielectric device according to claim 3, wherein said electrically conductive base metal material is any one of Cu, Ni, or a mixture of Cu and Ni, and/or their alloys.

7. A laminate type dielectric device according to claim 1, wherein said dielectric ceramic layer comprises PZT as an oxide mainly having a $Pb(Zr, Ti)O_3$ type perovskite structure.

8. A laminate type dielectric device according to claim 7, wherein said electrically conductive base metal

material is any one of Cu, a mixture of Cu and Ni and their alloys.

9. A method of producing a laminate type dielectric device formed by alternately laminating dielectric ceramic layers and electrode layers, comprising at least:

a first step of forming a green sheet by shaping a ceramic material into a sheet form;

a second step of applying an electrode paste material to at least one of the surfaces of said green sheet;

a third step of laminating said green sheets applied with said electrode paste material, and bonding them together;

a fourth step of degreasing a laminate product so bonded; and

a fifth step of integrally baking the materials in said electrode layer and the materials in said dielectric ceramic layer within the same process step;

wherein a laminate product containing, in said electrode layer as its principal component, an electrically conductive base metal material having greater standard Gibbs free energy for the formation of a metal oxide at a baking temperature than that of said ceramic material, and further containing, at least in said electrode layer, a melting restrictive material for restricting melting of an oxide of said electrically conductive base metal material existing, or formed, in said fifth step, is prepared immediately before said fifth step.

10. A method of producing a laminate type dielectric device formed by alternately laminating dielectric ceramic layers and electrode layers, comprising at least:

a first step of forming a green sheet by shaping a ceramic material into a sheet form;

a second step of applying an electrode paste material to at least one of the surfaces of said green sheet;

a third step of laminating said green sheets applied with said electrode paste material, and bonding them together;

a fourth step of degreasing a laminate product so bonded; and

a fifth step of integrally baking the materials in said electrode layer and the materials in said dielectric ceramic layer within the same process step;

wherein a laminate product containing, in said electrode layer as its principal component, an electrically conductive base metal material having a greater standard Gibbs free energy, for the formation of a metal oxide at a baking temperature, than that of said ceramic material, and further containing, at least in said electrode layer, either one of a melting point raising material for raising the melting point of an oxide of said electrically conductive base metal material formed in said fifth step or a compound between said oxide and said ceramic material and a melting point raising material for raising the melting point of said oxide of said electrically conductive base metal material and a material mixed in said ceramic material, is prepared immediately before said fifth step.

11. A method of producing a laminate type dielectric device formed by alternately laminating dielectric ceramic layers and electrode layers, comprising at least:

a first step of forming a green sheet by shaping a ceramic material into a sheet form;

a second step of applying an electrode paste material to at least one of the surfaces of said green sheet;

a third step of laminating said green

sheets applied with the electrode paste material, and bonding them together;

a fourth step of degreasing a laminate product so bonded; and

a fifth step of integrally baking the materials in said electrode layer and the materials in said dielectric ceramic layer within the same process step;

wherein a laminate product containing, in the electrode layer as its principal component, an electrically conductive base metal material having a greater standard Gibbs free energy, for the formation of a metal oxide at a baking temperature, than that of the ceramic material, and further containing, at least in the electrode layer, either one of a melting point raising material for raising the melting point of an oxide of said electrically conductive base metal material formed in said fifth step or a compound between the oxide and the ceramic material, and a melting point raising material for raising the melting point of the oxide of said electrically conductive base metal material and a material mixed in the ceramic material, and a diffusion restrictive material for restricting diffusion of the oxide of said electrically conductive base metal material into said green sheet as the component elements of said diffusion restrictive material diffuse by themselves into said green sheet in the fifth step, is prepared immediately before said fifth step.

12. A method of producing a laminate type dielectric device formed by alternately laminating dielectric ceramic layers and electrode layers, comprising the steps of:

forming a green sheet by shaping a ceramic material into a sheet form;

applying an electrode paste material to at least one of the surfaces of said green sheet, said electrode paste material containing as its principal

component an oxide of an electrically conductive base metal material having a greater standard Gibbs free energy, for the formation of a metal oxide at a baking temperature, than that of said ceramic material, and further containing a melting restrictive material for restricting an oxide of said electrically conductive base metal material formed during integral baking from fusing to said green sheet;

laminating said green sheets applied with said electrode paste material; and

integrally baking the resulting laminate.

13. A method of producing a laminate type dielectric device formed by alternately laminating dielectric ceramic layers and electrode layers, comprising the steps of:

forming a green sheet by shaping a ceramic material into a sheet form;

applying an electrode paste material to at least one of the surfaces of said green sheet, said electrode paste material containing as its principal component an oxide of an electrically conductive base metal material having a greater standard Gibbs free energy, for the formation of a metal oxide at a baking temperature, than that of said ceramic material, and further containing either one of a melting point raising material for raising the melting point an oxide of said electrically conductive base material formed during integral baking or a compound between said oxide and said ceramic material, and a melting point raising material for raising the melting points of the oxide of said electrically conductive base metal material and materials mixed in said ceramic material;

laminating said green sheets applied with said electrode paste material; and

integrally baking the resulting laminate.

14. A method of producing a laminate type dielectric device formed by alternately laminating

dielectric ceramic layers and electrode layers, comprising the steps of:

forming a green sheet by shaping a ceramic material into a sheet form;

applying an electrode paste material to at least one of the surfaces of said green sheet, said electrode paste material containing as its principal component an oxide of an electrically conductive base metal material having a greater standard Gibbs free energy, for the formation of a metal oxide at a baking temperature, than that of said ceramic material, and further containing at least a melting point raising material for raising the melting point of an oxide of said electrically conductive base metal material formed during integral baking or the melting point of a compound between said oxide and said ceramic material, or the melting point of said oxide of said electrically conductive base metal material and materials mixed in said ceramic material, and a diffusion restrictive material for restricting diffusion of said oxide of said electrically conductive base metal material into said green sheet as the component elements of said diffusion restrictive material diffuse by themselves into said green sheet during integral baking;

laminating said green sheets applied with said electrode paste material; and

integrally baking the resulting laminate.

15. A method of producing a laminate type dielectric device according to claim 9, wherein said electrically conductive base metal material is any one of Cu, Ni, a mixture of Cu and Ni and their alloys.

16. A method of producing a laminate type dielectric device according to claim 9, wherein said dielectric ceramic layer comprises PZT as an oxide mainly having a $Pb(Zr, Ti)O_3$ type perovskite structure.

17. A method of producing a laminate type dielectric device according to claim 16, wherein said

electrically conductive base metal material is Cu, a mixture of Cu and Ni or their alloys.

18. A method of producing a laminate type dielectric device according to claim 9, wherein said melting restrictive material is a Ca compound.

19. A method of producing a laminate type dielectric device according to claim 18, wherein said Ca compound is $CaCO_3$ or CaO.

20. A method of producing a laminate type dielectric device according to claim 19, wherein, when the amount of said electrode layer exclusive of said $CaCO_3$ or CaO is 100 wt%, said $CaCO_3$ or CaO is contained within a range of an amount exceeding 1 wt% to 15 wt% calculated as CaO.

21. A method of producing a laminate type dielectric device according to claim 10, wherein said melting point raising material is either a material which exhibits a change of a melting point of a complete solid solution system when it is reacted with a reaction material comprising a compound between said ceramic material and an oxide of said electrically conductive material, or with a reaction material between the oxide of said electrically conductive base metal material and a material mixed in said ceramic material, or with a reaction material comprising an oxide of said electrically conductive base metal material, and which has a higher melting point than that of said reaction materials, or a material which exhibits a change of an eutectic type melting point when it is reacted with any one of said reaction materials, in which the eutectic point with said reaction product exists within a range of an amount exceeding 0 wt% to 5 wt% calculated as the amount of the oxide of the component element of said reaction material, and which has a higher melting point than that of said reaction material.

22. A method of producing a laminate type dielectric device according to claim 10, wherein said

melting point raising material is a material which exhibits a change of a melting point of a complete solid solution system when it is reacted with a reaction material comprising a mixture between said ceramic material and an oxide of said electrically conductive material at a temperature not higher than 680°C, or with a reaction material between the oxide of said electrically conductive base metal material and a material mixed in said ceramic material, or with a reaction material comprising an oxide of said electrically conductive base metal material, and which has a melting point higher than that of said reaction materials, or a material which exhibits a change of an eutectic type melting point when it is reacted with any one of said reaction materials, in which the eutectic point with said reaction material exists within a range of an amount exceeding 0 wt% to 5 wt% calculated as the amount of the oxide of the component element of said reaction material, and which changes to, or generates, any of materials having a melting point higher than that of said reaction materials.

23. A method of producing a laminate type dielectric device according to claim 10, wherein said melting point raising material is a Mg compound or Sr compound.

24. A method of producing a laminate type dielectric device according to claim 23, wherein said Mg compound is MgO and said Sr compound is $SrCO_3$.

25. A method of producing a laminate type dielectric device according to claim 23, wherein, when the amount of said electrode layer exclusive of said MgO or said electrode layer exclusive of said MgO and said diffusion restrictive material is 100 wt%, said MgO is contained in an amount within the range of 0.2 to 20 wt%.

26. A method of producing a laminate type dielectric device according to claim 24, wherein, when the amount of said electrode layer exclusive of said

$SrCO_3$ or said electrode layer exclusive of said $SrCO_3$ and said diffusion restrictive material is 100 wt%, said $SrCO_3$ is contained in an amount within the range of 10 to 15 wt% calculated as SrO.

27. A method of producing a laminate type dielectric device according to claim 11, wherein said diffusion restrictive material is a Ca compound.

28. A method of producing a laminate type dielectric device according to claim 27, wherein said Ca compound is $CaCO_3$ or CaO.

29. A method of producing a laminate type dielectric device according to claim 28, wherein, when the amount of said electrode layer exclusive of said $CaCO_3$ or CaO and said melting point raising material is 100 wt%, said $CaCO_3$ or CaO is contained within a range of an amount exceeding 1 wt% to 15 wt% calculated as CaO.

30. A method of producing a laminate type dielectric device according to claim 9, wherein a designated electrode paste material is applied to both surfaces of said green sheets, and said green sheets applied with said electrode paste material are laminated while sandwiching electrically conductive powder or thin film, and are integrally baked.

31. A laminate type dielectric device formed by alternately laminating dielectric ceramic layers and electrode layers, wherein said electrode layer is made of an electrically conductive base metal material having a greater standard Gibbs free energy, for the formation of a metal oxide at a baking temperature, than that of a ceramic material constituting mainly said dielectric ceramic layer, and wherein, when a reference straight line orthogonally crossing any one of said dielectric ceramic layers and two electrode layers above and below said dielectric ceramic layer is assumed, a portion containing a Ca amount per unit volume greater than A+B, where A is a Ca amount per unit volume contained at a center point at the center of said dielectric ceramic

layer in a thickness-wise direction and B is a Ca amount per unit volume contained in either an upper or lower electrode layer, exists on said reference straight line connecting said electrode layer containing B to said center point.

32. A laminate type dielectric device formed by alternately laminating dielectric ceramic layers and electrode layers, wherein said electrode layer is made of an electrically conductive base metal material having a greater standard Gibbs free energy, for the formation of a metal oxide at a baking temperature, than that of a ceramic material constituting mainly said dielectric ceramic layer, and said electrode layer contains Mg as its component element.

33. A laminate type dielectric device formed by alternately laminating dielectric ceramic layers and electrode layers, wherein said electrode layer is made of an electrically conductive base metal material having a greater standard Gibbs free energy, for the formation of a metal oxide at a baking temperature, than that of a ceramic material constituting mainly said dielectric ceramic layer, and wherein the Mg content per unit volume in said electrode layer is greater than a mean value of the Mg content per unit volume in said dielectric ceramic layer.

34. A laminate type dielectric device formed by alternately laminating dielectric ceramic layers and electrode layers, wherein said electrode layer is made of an electrically conductive base metal material having a greater standard Gibbs free energy, for the formation of a metal oxide at a baking temperature, than that of a ceramic material constituting mainly said dielectric ceramic layer, and wherein the Sr content per unit volume in said electrode layer is greater than a mean value of the Sr content per unit volume in said dielectric ceramic layer.

35. A laminate type dielectric device according to

claim 31, wherein said electrically conductive base metal material is any one of Cu, Ni, a mixture of Cu and Ni and their alloys.

36. A laminate type dielectric device according to claim 31, wherein said dielectric ceramic layer comprises PZT as an oxide mainly having $Pb(Zr, Ti)O_3$ perovskite structure.

37. A laminate type dielectric device according to claim 36, wherein said electrically conductive base metal material is any one of Cu, a mixture of Cu and Ni and their alloys.

38. An electrode paste material for forming electrode layers in a laminate type dielectric device formed by alternately laminating dielectric ceramic layers and said electrode layers, wherein said electrode paste material consists of CuO as its principal component, and contains a melting restrictive material for restricting melting of a copper oxide to said dielectric ceramic layer during integral baking.

39. An electrode paste material for forming electrode layers in a laminate type dielectric device formed by alternately laminating dielectric ceramic layers and said electrode layers, wherein said electrode paste material consists of CuO as its principal component, and contains a melting point raising material for raising a melting point of said copper oxide or a melting point of a compound between said copper oxide and ceramic material constituting said dielectric ceramic layer, or melting points of materials mixed in said ceramic material and said copper oxide during integral baking.

40. An electrode paste material for forming electrode layers in a laminate type dielectric device formed by alternately laminating dielectric ceramic layers and said electrode layers, wherein said electrode paste material consists of CuO as its principal component, and contains a melting point raising material

for raising a melting point of said copper oxide or a melting point of a compound between said copper oxide and ceramic material constituting said dielectric ceramic layer, or melting points of materials mixed in said ceramic material and said copper oxide during integral baking, and a diffusion restrictive material for restricting diffusion of said copper oxide into said dielectric ceramic layer during integral baking, as the components of said diffusion restrictive material diffuse by themselves into said dielectric ceramic layer.

41. An electrode paste material according to claim 38, wherein said dielectric ceramic layer comprises PZT as an oxide mainly having a $Pb(Zr, Ti)O_3$ type perovskite structure.

42. An electrode paste material according to claim 38, wherein said melting restrictive material is a Ca compound.

43. An electrode paste material according to claim 42, wherein said Ca compound is $CaCO_3$ or CaO.

44. An electrode paste material according to claim 43, wherein, when the amount of said electrode layer exclusive of said $CaCO_3$ or CaO is 100 wt%, said $CaCO_3$ or CaO is contained within a range of an amount exceeding 1 wt% to 15 wt% calculated as CaO.

45. An electrode paste material according to claim 39, wherein said melting point raising material is either a material which exhibits a change of a melting point of a complete solid solution system when it is reacted with a reaction material comprising a compound between said ceramic material and a copper oxide, or with a reaction material comprising a mixture of the copper oxide and a material mixed in said ceramic material, or with a reaction material comprising the copper oxide, and has a melting point higher than that of said reaction materials, or a material which exhibits a change of an eutectic type melting point when it is reacted with any one of said reaction materials, in which the eutectic

point with said reaction materials exists within a range of an amount exceeding 0 wt% to 5 wt% calculated as the amount of the oxide of the component element of said reaction material, and which has a higher melting point than that of said reaction material.

46. An electrode paste material according to claim 39, wherein said melting point raising material is either a material which exhibits a change of a melting point of a complete solid solution system when it is reacted with a reaction material comprising a mixture of said ceramic material and a copper oxide at a temperature lower than 680°C, or with a reaction material comprising a mixture of the copper oxide and a material mixed in said ceramic material, or with a reaction material comprising the copper oxide, and has a higher melting point than that of said reaction materials, or a material which exhibits a change of an eutectic type melting point when it is reacted with any one of said reaction materials, in which the eutectic point with said reaction materials exists within a range of an amount exceeding 0 wt% to 5 wt% calculated as the amount of the copper oxide, and which changes to, or generates, a material having a higher melting point than that of said reaction materials.

47. An electrode paste material according to claim 39, wherein said melting point raising material is a Mg compound or a Sr compound.

48. An electrode paste material according to claim 47, wherein said Mg compound is MgO and said Sr compound is $SrCO_3$.

49. An electrode paste material according to claim 48, wherein, when the amount of said electrode paste material exclusive of MgO or said electrode paste material exclusive of MgO and said diffusion restrictive material is 100 wt%, said MgO is contained in an amount within the range of 0.2 wt% to 20 wt% calculated as CaO.

50. An electrode paste material according to claim 48, wherein, when the amount of said electrode paste

material exclusive of said $SrCO_3$ or said electrode paste material exclusive of said $SrCO_3$ and said diffusion restrictive material is 100 wt%, said $SrCO_3$ is contained in an amount within the range of 10 to 15 wt% calculated as SrO.

51. An electrode paste material according to claim 40, wherein said diffusion restrictive material is a Ca compound.

52. An electrode paste material according to claim 51, wherein said Ca compound is $CaCO_3$ or CaO.

53. An electrode paste material according to claim 52, wherein, when the amount of said electrode paste material exclusive of said $CaCO_3$ or CaO and said melting point raising material is 100 wt%, said $CaCO_3$ or CaO is contained within a range of an amount exceeding 1 wt% to 15 wt% calculated as CaO.

54. An electrode paste material according to claim 38, which further contains a cooperative material consisting of at least one kind of the principal components constituting said dielectric ceramic layer.

55. An electrode paste material according to claim 38, which further contains a cooperative material consisting of substantially the same material as the material constituting said dielectric ceramic layer.

56. An electrode paste material according to claim 54, wherein the content of said cooperative material is less than 25 wt%.

57. An electrode paste material according to claim 54, wherein the content of said cooperative material is not greater than 15 wt%.

58. A method of producing a laminate type dielectric device according to claim 9, wherein said electrode paste material contains a cooperative material consisting of at least one kind of the principal components constituting said dielectric ceramic layer.

59. A method of producing a laminate type dielectric device according to claim 58, wherein said

electrode paste material contains a cooperative material consisting of substantially the same material as the material constituting said dielectric ceramic layer.

60. A method of producing a laminate type dielectric device according to claim 58, wherein the content of said cooperative material is less than 25 wt%.

61. A method of producing a laminate type dielectric device according to claim 58, wherein the content of said cooperative material is not greater than 15 wt%.